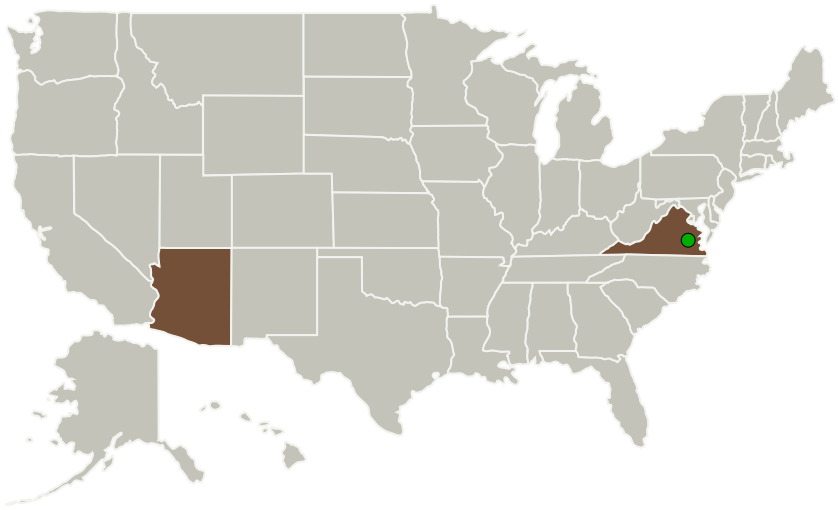
Tunable Single Frequency 1.55 Micron Fiber Laser, Phase I

Completed Technology Project (2011 - 2011)

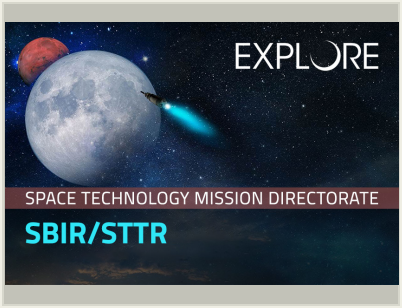
Project Introduction

In this proposal, we propose to demonstrate and build a widely tunable, narrow linewidth, single frequency fiber laser by developing an innovative Er/Yb-co-doped single mode fiber. Such a fiber laser is needed for coherent lidar and interferometric fiber sensing. In Phase I, we will design and fabricate this new fiber, demonstrate fixed wavelength narrow linewidth single frequency fiber laser with linewidth of less than 3KHz, demonstrate wavelength tuning range of greater than 5nm, and demonstrate 5GHz frequency modulation with no any mode-hoping in less than 1ms. Successful demonstration of such a fiber laser will enable many new commercial and military applications.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
AdValue Photonics, Inc.	Lead Organization	Industry Small Disadvantaged Business (SDB)	Tucson, Arizona
Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia



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Primary U.S. Work Locations	
Arizona	Virginia

Project Transitions

February 2011: Project Start

September 2011: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/137406)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

AdValue Photonics, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

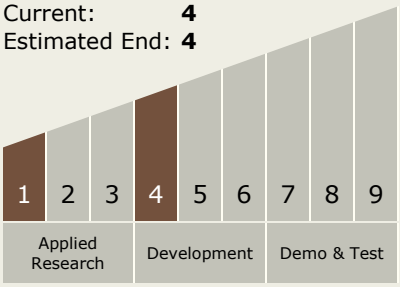
Carlos Torrez

Principal Investigator:

Shibin S Jiang

Technology Maturity (TRL)

Start: **1**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.5 Lasers

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System